

NAME: **ALEXEI MIKHAIL TSVELIK**

**Address:**

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**Born :** March 23rd, 1954, Samara — Russia

**Nationality:** British/ Russian

**Carreers of Former Graduate Students**

1. Paul de Sa - DPhil. 95, 1995-96 - Kennedy Scholar at MIT, then a postdoc at Harvard School for Goverment. Now he works for the US goverment.

2. David G. Shelton - DPhil. 96, 1 year postdoc at Sherbrooke (Canada), 1/2 year postdoc at Oxford. After that he left physics and now works in the City.

3. Andrew G. Green - DPhil. 97, for 1 year he was in Princeton as a Lindemann Scholar, had been a Junior Research Fellow (JRF) at Trinity College (Cambridge), now a Royal Society Fellow at Oxford, now holds a Lecturer position at University of St. Andrews.

4. Jean-Sebastien Caux - DPhil 98, spent one year as a postdoc with I. Affleck at UBC, then JRF at All Souls College (Oxford). Now has a permanent position in University of Amsterdam.

5. Chris Hooley - DPhil 99. EPSRC Fellow at University of Birmingham.

6. Davide Controzzi - DPhil 2000, a postdoc at Princeton funded by Rotary Foundation Scholarship; moved to ICTP (Trieste) and then to University of Amsterdam then a Fellow at SISSA. Left physics.

7. Emiliano Papa - DPhil 2001, held a postdoctoral position at University of Texas, Austin; the 2nd postdoc in University of Virginia. Left physics.

8. Joe M. Bhaseen - DPhil 2001, finished a postdoctoral at BNL, then a postdoc at Princeton/Oxford. Now he is a postdoc at Cambridge (UK).

9. Sam Carr - DPhil 2003, postdoc at ICTP Trieste, a postdoc at University of Birmingham.

10. S. Reyes, PhD 2007, a postdoc at Dusseldorf (Germany).

## Fellowships and Awards:

American Physical Society Fellow 2002

Brookhaven Science and Technology Award 2006

## Education

Sept 1971 June 1977 : Undergraduate, Moscow Physical-Technical Institute.

July 1977 May 1980 : Postgraduate studies at Institute for High Pressure Physics of Academy of Sciences of USSR.

March 1980 : Ph. D. in theoretical physics

## Professional Record

Feb.-March 2005, on leave at Princeton University.

Since 4 April 2001 - Senior Research Staff member, Brookhaven National Laboratory, Upton, NY and Adjunct Professor at SUNY, Stony Brook.

March - June 2000, Visiting Fellow Commoner in Trinity College, Cambridge

Since Sept. 1, 1992 till Apr. 4, 2001 - Lecturer (from July 28/97 - Professor) in Physics in Department of Physics, University of Oxford and a tutorial fellow in Brasenose College, Oxford.

1 March - August 30 1992 Department of Physics, Harvard University, visiting scholar,  
August 1991 - February 1992 Department of Physics, Princeton University, visiting research staff member.

September 1989 - August 1991; Institute of Fundamental Theory fellow in University of Florida, Gainesville, FL.

May 1982 - February 1996; Permanent scientific staff member, Landau Institute for Theoretical Physics, Moscow.

May 1980 - May 1982 : Scientific staff member, Institute for High Pressure Physics, Moscow.

## Visits by Invitation to other Institutions

Aug. 5 Aug. 26 1990 Ohio State University.

Oct. 1 Oct. 10 1990 University of Miami.

Dec. 5 Dec. 15 1990 Ohio State University.

April 1994, Tekhnion, Haifa, Israel.

March 17 Apr. 5 1995 NEC Research Institute, Princeton.

March 18 June 22 1996 Institute for Theoretical Physics, University of California, Santa Barbara.

Aug. 25 - Sept. 28 1996 Fellow of Japanese Society for Promotion of Science with a base in Institute for Solid State Physics, University of Tokyo.

January 4 - 17 1997 International Center for Theoretical Physics, Trieste, Italy.

March 26 - Apr. 24 1997 Visiting Professor in L'Ecole Normale Supérieure, Paris.

March 15 - March 30 1998 Visiting Professor in Rutgers University.

Apr. 1 - Apr. 24 1998 Visiting Professor in University Paris-Sud, Orsay.

Jan. 6 - Jan. 16 1999, Lecture Course (Troisième Cycle de la Physique) in Institut de Physique Théorique, Lausanne.

Apr. 5 - 23 1999, Centro Atomico di Bariloche, Argentina.

May. 1 - 31 1999, Visiting Professor in University of Pierre and Marie Curie, Paris.

Lecture Course on Conformal Field Theory ( 6 lectures) given at ESQN-99 (Windsor), Aug. 1999

Dec.19 1999 - Jan 2. 2000 - Weizmann Institute of Physics, Israel.

Jan. 10-15, 2000 - CEA Saclay, France.

March 25 - June 31, 2000; Isaac Newton Institute for Mathematical Sciences, Cambridge, UK

August 5 - 27, 2000; MPIPKS Dresden Germany - a conference organizer.

Dec. 9- 16, 2002, Theoretical Physics Institute, University of Minnesota.

May 16-June 27, 2002, Abdus Salam ICTP, Trieste, Italy.

Dec 6- Dec. 19, 2002, Abdus Salam ICTP, Trieste, Italy.

July 9 - July 24, 2004, Abdus Salam ICTP, Trieste, Italy.

Oct. 3- Oct. 14, 2005, Abdus Salam ICTP, Trieste, Italy.

Nov 26. 3- Dec. 16, 2006, Abdus Salam ICTP, Trieste, Italy.

May 19-June 22, July 7-14, 2007, Institute Henri Poincaré, Paris, France.

Dec. 1- 17, Orsay Lab, Paris, France.

## **Presentations at Professional Conferences and Meetings**

“Novel treatment of the spin-1 Heisenberg chain”, presented at USA-USSR Conference on Frontiers in Condensed Matter Theory , CUNY Graduate Center, NY. December 1989.

“Novel treatment of the spin-1 Heisenberg chain”, presented on March 1990 Meeting of American Physical Society.

“Long wavelength properties of spiral magnetic phases” presented on March 1990 Meeting of American Physical Society.

“Effects of topological excitations in disordered magnetic ( RVB ) state”, presented on the University of Miami Workshop on: Electronic Structure and Mechanisms for High Temperature Superconductivity, Jan. 3 Jan. 9, 1991

“Effects of topological excitations in disordered magnetic ( RVB ) state”, presented on the NATO Advanced Research Workshop Program, the University of Miami , Jan. 8 Jan. 11, 1991

“Non-traditional magnetic states in highly correlated electronic systems”, presented on March 1991 Meeting of American Physical Society (invited talk).

“Observation of non-Fermi liquid behavior in  $U_{0.2}Y_{0.8}Pd_3$  and  $VAu$  alloys”, National High Magnetic Field Laboratory Conference, May 15 18, 1991.

”Simple models with parafermionic statistics”, presented on March 1992 Meeting of American Physical Society.

”Novel Approach to Kondo Lattice Problem” - Dec. 1992 Meeting of Royal Physical Society, Sheffield.

”Phenomenological Theory of Non-Fermi-liquid Heavy Fermion Alloys”, - July 1993, workshop in strongly correlated materials, ICTP, Trieste, Italy.

”Exact results for (2 +1)-dimensional Dirac electrons in a random gauge potential”, workshop on strongly correlated low-dimensional systems, Nordita, Copenhagen, June 1994.

”Exact solution of the Kondo chain model at half filling”, Laue Langevine Institute conference, the Alps, April 1994.

"Non-Fermi-liquid properties of Uranium compounds", workshop on strongly correlated low-dimensional systems, Nordita, Copenhagen, June 1995.

"Non-Fermi-liquid properties of Uranium compounds", July 1995, ICTP, Trieste, Italy.

"Non-Fermi-liquid properties of Uranium compounds", July 1995, Telluride workshop on Quantum Critical Phenomena, Telluride, Colorado.

"Superconductivity in Doped Spin-Ladder Chains", "Gaps d'energie..." conference in Grenoble, France, January 1996 (invited talk).

"Superconductivity in Doped Spin-Ladder Chains", workshop on Non-Fermi-liquid phenomena, Institute for Theoretical Physics, University of California at Santa Barbara, April, 1996.

"The Liouville theory as a Theory of Prelocalized States in Disordered Conductors", workshop on Quantum Chaos and Mesoscopic Phenomena, Institute for Theoretical Physics, University of California at Santa Barbara, April, 1996.

"Coherence-Incoherence Transition between Fermi and Luttinger liquids", workshop on strongly correlated low-dimensional systems, Nordita, Copenhagen, Dec. 12, 1996.

"Properties of Spin Ladders", invited talk on the March Meeting of the American Physical Society, March 1997, Kansas City.

"Excitations and Correlation functions in 1D systems", Conference in University of Leiden, May 12 1998.

"Excitations and Correlation functions in 1D systems", Conference in Statistical Physics, ICTP, Trieste, June 22-27 1998.

"Excitations and Correlation functions in 1D systems", Claude Itzykson Conference, Paris, July 25-28 1998.

"Correlation functions in 1D systems with spectral gaps, application to Copper Benzoate", Max Plank Institute conference in magnetism, Dresden, Oct. 15, 1998.

"Exactly solvable model with Haldane's exclusion statistics", invited talk on "Flux, Charge and Statistics" conference in Amsterdam, July 1999.

"Some interesting problems in condensed matter physics", invited talk on MBX conference, Sept. 11-14, 1999, Seattle.

"The Chern-Simons Theory of the Pfaffian Quantum Hall State", invited talk on David Thouless conference, Sept. 15-19, 1999, Seattle.

"Towards a Conformal Field Theory of Plateau Transition", Conference in King's College, London, Dec. 4, 1999.

"Towards a Conformal Field Theory of Plateau Transition", workshop in the University of Montreal, June 5 -June 10, 2000.

"Critical Theories of Disorder", 4th Annual TMR Conference, ENS, Paris, Sept. 9-13, 2000.

'Mott-insulator-Metal transition in Quasi-1D systems', University of Oxford, Oriel College, Institute of Physics conference, March 30, 2001.

'Marriage of Three Different Approaches in Critical models of Disorder', NATO Advanced Research Workshop in Statistical Field Theories, lake Como, June 18-23, 2001.

'Mott-insulator-Metal transition in Quasi-1D systems', Amsterdam Summer Workshop 'Flux, Charge, Topology and Statistics', June 25-30, 2001.

'Applications of Conformal Field Theory to Integer Quantum Hall transition', Workshop on Applications of Conformal Field Theory in IPAM, UCLA, Oct. 14-20, 2001.

'Statistics of Wave Functions at Integer Quantum Hall Plateau Transition', J. Simons Conference on Random Matrix Theories, SUNY Stony Brook, Feb. 20-23, 2002.

'Single electron Green's function for 1D CDW state', Conference in Interactions and Chaos in Mesoscopic Systems, University of Minnesota, Minneapolis, May 2002.

'2D realization of RVB spin liquid - non-perturbative results' workshop on Mesoscopics, ICTP, Trieste, Italy, June 24, 2002.

'2D realization of RVB spin liquid - non-perturbative results', Gordon Conference on Correlated Electron Systems, Colby College, June 28-July 4, 2002.

'Spinons in higher dimensions- non-perturbative results', Workshop in Strongly Correlated and Emergent Materials, Aug.4 - 17, ICTP, Trieste, Italy.

'Spinons in higher dimensions- non-perturbative results', International Workshop on Progress in Condensed Matter Theory, Dresden, Germany, Nov. 1, 2002.



“A blueprint for RVB - Confederate Flag Magnet”, workshop on “Quantum Criticality in Correlated Matter”, invited talk, Columbia University, March 20-23, 2003.

“Propagating spinons beyond 1D”, invited talk, APS March meeting, Austin, Texas 2003.

“Propagating spinons beyond 1D”, invited talk, workshop on Quantum Criticality, Lorentz Center, Leiden, May 10-24, 2003.

“Propagating spinons beyond 1D”, invited talk, International Heraeus workshop on Quantum Field Theory in Condensed Matter and Particle Physics, MPIPKS Dresden, June 2-6, 2003.

“How spin-1/2 imitates incommensurability”, workshop on “Flux, Charge, Topology and Statistics”, invited talk, University of Amsterdam, June 30- July 5, 2003.

“Spinons beyond one dimension”, invited talk, ICM-2003, Rome, July 26-Aug. 1, 2003.

“Spinons beyond one dimension”, invited talk, The conference in tribute of Ian Kogan: Circumferencing Physics: from Fields to Strings, Oxford, Jan 8-10, 2004.

“Mott insulating physics of Carbon nanotubes”, invited talk, International Workshop on Evolution of Quantum Effects from the Nano to the Macroscale, May 17-22, 2004, Cargese, France.

“Mott insulating physics of Carbon nanotubes”, invited talk, “Fundamentals of Electronic Nanosystems”, June 28 -July 4, 2004, St.-Petersburg, Russia.

“Mott insulating physics of Carbon nanotubes”, invited talk, workshop on Strongly Correlated Systems, ICTP, Trieste, July 11- July 23, 2004.

”Strong coupling perturbation theory: an example of 2 Hubbard chains”, Apr. 4, 2005, MECO30 Conference, Cortona, Italy.

”Strong coupling perturbation theory: an example of 2 Hubbard chains”, Apr. 14, 2005, TD-70 Conference, Moscow, Russia.

”Finite temperature correlation functions in integrable systems”, workshop on Integrable Models, Universite Pierre et Marie Curie, Paris, May 2, 2005.

“Finite temperature universal dynamics in integrable systems”, workshop in Fundamentals of Electronic Systems, St.Petersburg, Russia, July 28, 2005.

“Finite temperature universal dynamics in integrable systems”, conference on Strongly Correlated Systems on Nanoscale, ICTP, Trieste, Aug. 8-12, 2005.

“Doped spin liquids: Luttinger sum rule and superconductivity”, International Argonne Fall Workshop on Nanophysics V: Nanoscale Superconductivity and Magnetism, Nov. 14-18, 2005.

“Virial expansion for the Quantum Ising model correlation functions”, A. Larkin memorial conference, Minneapolis, May 4-7, 2006.

“Virial expansion for the Quantum Ising model correlation functions”, C. Itzykson memorial conference, Saclay, June 21-23, 2006.

“Exact solution of a model of Fermionic cold atoms”, workshop in Fundamentals of Electronic Systems, St.Petersburg, Russia, June 25-29, 2006.

”A special limit of the Anisotropic Principal Chiral Field”, workshop in Affine Hecke Algebras, the Langlands program, Conformal Field Theory and Matrix models, CIRM, Luminy, Marseilles, July 9-14 2006.

“Applications of Bethe ansatz in Condensed Matter Physics”, workshop in Integrability in Gauge and String Theory, Potsdam, Germany, 24-28 July 2006.

“Virial expansion for the Quantum Ising model correlation functions”, workshop on Stable and Unstable States of Quantum Matter, ICTP, Trieste, Italy, Aug. 14-25, 2006

“Phenomenological model for underdoped cuprates”, conference on Frustrated Magnetism and 1D Systems, ICTP, Trieste, Aug. 1-17, 2007.

“Exciton condensation in graphene initiated by the magnetic field”, Mesoscopic workshop, Mojacar, Spain, Sept. 10-13, 2007.

“  $PSL(2|2)$  WZNW theory as a possible theory for Plateau Transition in IQHE”, “Fields, Lattices and Condensed Matter”, a symposium in honour of John Cardy’s 60th birthday, Dec. 14-15, 2007, Oxford.

## Participation in Research Programs

Nov. 2 Dec. 1 1990 participation in the research program in high-T superconductivity, organized by the Institute of Scientific Interchange, Villa Gualino, Turin, Italy.

June 20 - July 9, 1993, mini-workshop in strongly correlated electronic systems, ICTP, Trieste, Italy.

July 3 - July 15, 1995, mini-workshop in strongly correlated electronic systems, ICTP, Trieste, Italy.

March 18 - June 25, 1996, workshop in strongly correlated systems and quantum critical phenomena, ITP, Santa Barbara.

July 14 - July 25, 1997, workshop in strongly correlated electronic systems, ICTP, Trieste, Italy.

September 15 - 19, 1997, workshop in mesoscopics and chaos, Newton's Institute, Cambridge, UK.

July 25 - Aug. 15, 1999, workshop on New Quantum States, Aspen, Colorado.

March 25-June 30, 2000, a program in Strongly Correlated Electron Systems, Isaac Newton Institute, Cambridge.

Aug 5-27, 2000, a program on Non-Perturbative Methods in Disordered Systems, MPIPKS Dresden.

May 20-June 20, 2007, "Gaz Quantique", Institute for Andre Poincare, Paris.